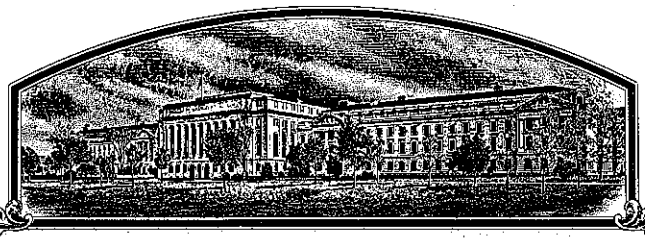


No. 9600082

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Busch Agricultural Resources, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR ORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE E PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT ED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BARLEY

'B2027'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twenty-ninth day of February in the year of our Lord one thousand nine hundred and ninety-six.

Attest:

Marsha A. Stanton
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Dan Glickman
Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions.* FORM APPROVED - OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a).

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*
BUSCH AGRICULTURAL RESOURCES, INC.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
6B89-2027

3. VARIETY NAME
B2027
AAA 22Feb1996

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
3515 EAST COUNTY ROAD 52
FT. COLLINS, CO 80524 U.S.A.

5. TELEPHONE *(include area code)*
(970) 221-5622

6. FAX *(include area code)*
(970) 482-5965

FOR OFFICIAL USE ONLY

PVPO NUMBER
9600082

FILING DATE
Dec 13, 1995

FEES RECEIVED
FILING AND EXAMINATION FEE: $2450.00
DATE: Dec 13, 1995
CERTIFICATION FEE: $300.00
DATE: 02/20/96

7. GENUS AND SPECIES NAME
HORDEUM VULGARE L.

8. FAMILY NAME *(Botanical)*
GRAMINEA

9. CROP KIND NAME *(Common name)*
SPRING BARLEY

10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.) (Common name)*
CORPORATION

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
DELAWARE

12. DATE OF INCORPORATION
01/01/81

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
DR. LES WRIGHT
BUSCH AGRICULTURAL RESOURCES, INC.
3515 EAST COUNTY ROAD 52
FT. COLLINS, CO 80524

(OR)

DR. MIKE BJARKO
SAME ADDRESS &
TELEPHONE #

14. TELEPHONE *(include area code)*
(970) 221-5622

15. FAX *(include area code)*
(970) 482-5965

16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow instructions on reverse)*

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of the Variety
d. ☒ Exhibit D. Additional Description of the Variety
e. ☒ Exhibit E. Statement of the Basis of the Applicant's Ownership
f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in a public repository)*
g. ☒ Filing and Examination Fee ($2,450), made payable to "Treasurer of the United States" *(Mail to PVPO)*

H. QUALITY AND AGRONOMIC DATA

17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)?*
☐ YES *(If "yes," answer items 18 and 19 below)* ☒ NO *(If "no," go to item 20)*

18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☐ NO

19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☐ YES *(If "yes," give names of countries and dates)* ☒ NO

21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*		SIGNATURE OF APPLICANT *(Owner(s))*	
Leslie J. Wright		Mike Bjarko	
NAME *(Please print or type)*		NAME *(Please print or type)*	
Leslie J. Wright		Mike Bjarko	
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
Research Director	12/11/95	Barley Breeder	11 Dec 95

SD-470 (04-96) *(Previous editions are to be destroyed)*

(See reverse for instructions and information collection burden statement)

EXHIBIT A

ORIGIN AND BREEDING HISTORY OF 6B89-2027 (BT941) ≡'B2027' AAA 22 Feb 1996

PEDIGREE: UM74-3154/S7355/3/ Morex/Manker//*2Robust

DATE OF CROSS: 1986

HISTORY:

An F2 population was grown in Olds, Alberta Canada in 1987. Individual heads were harvested from this population and grown as a single seed descent population in the greenhouse during the winter of 1987/1988. The selection 6B89-2027 originated from a single F4 headrow grown in the field in Olds in 1988. Seed was increased in the field in Yuma, Arizona during the winter of 1988/1989.

6B89-2027 was first grown in replicated yield trials in 1989 in the F6 generation and has been in replicated yield trials every year since then.

Purification of 6B89-2027 was initiated in 1991 when individual heads were randomly selected from a pure seed increase plot in Ft. Collins, Colorado. One hundred headrows were grown in the field in Ft. Collins in 1992 and only selected headrows were harvested and bulked for Breeder seed production.

Headrows have been grown from 1993-1995 and only selected rows were harvested for Breeder seed production each year. During the winter of 1994/1995 Breeder seed was grown in El Centro, California. Breeder seed was produced in Ft. Collins, CO in 1995 and in Canada. Headrows are maintained to keep Breeder seed supplies replenished and pure.

Certified seed will be available in 1998.

AMENDMENT TO EXHIBIT A

PV Application No. 9600082, BARLEY,<6B89-2027> = B2027 AAA 22Feb1996

6B89-2027 is uniform and stable over eight years and nine generations. Less than .5% of the plants were rogued from Breeder fields in 1995. Approximately 95% of the rogued variant plants were 2-4 centimeters taller than 6B89-2027. Less than .5% total variant plants may be encountered in subsequent generations.

Pedigree: UM74-3154/S7355/3/Morex/Manker//*2Robust

The breeding line UM74-31-54 was an experimental line from the University of Manitoba, this line was crossed with another experimental line S7355 from the University of Saskatchewan which made an experimental variety BT462 which was entered in the Canadian Western Co-operative Six Row Barley Test in 1984. All experimental lines entered in the co-op are available to breeding programs.

Selection criteria used to breed 6B89-2027 is as follows:

Midwestern Six-rowed Barley 6B89-2027

Yield:	Greater than Stander
Maturity:	Equal to or earlier than Stander
Straw strength:	Equal to or greater than Stander
Kernel plumpness:	Equal to or greater than Stander
Protein:	Equal to or less than Morex
Diastatic power:	Equal to or greater than Morex
Extract:	Equal to or greater than Morex
Alpha amylase:	Equal to Morex
Viscosity:	Equal to or less than Morex
Turbidity:	Equal to or less than Morex

EXHIBIT B

STATEMENT OF DISTINCTNESS

= '6B2027' AAA 22 Feb 1996

6B89-2027 Is most similar to the spring barley variety "Robust," however it can be distinguished by the following morphological characteristics:

- 6B89-2027 has semi-smooth lemma awns.
  The lemma awns of Robust are smooth.

- 6B89-2027 has long rachilla hair.
  The rachilla hair of Robust is short.

FORM APPROVED: OMB NO. 40-R3822

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK AND SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Barley)

OBJECTIVE DESCRIPTION OF VARIETY
BARLEY *(HORDEUM VULGARE)*

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
BUSCH AGRICULTURAL RESOURCES, INC.

ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*
3515 EAST COUNTY ROAD 52
FT. COLLINS, CO 80524

FOR OFFICIAL USE ONLY
PVPO NUMBER 9600082
VARIETY NAME OR TEMPORARY DESIGNATION 6B89-2027 (BT941)

Place the appropriate number that describes the varietal character of this variety in the boxes below. = 'B 2027' AAA 22 Feb 1996
Place a zero in first box (i.e. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. GROWTH HABIT:

[1] 1 = SPRING 2 = FACULTATIVE WINTER 3 = WINTER [3] Early Growth: 1 = PROSTRATE 2 = SEMIPROSTRATE 3 = ERECT

2. MATURITY (50% Flowering):

[2] 1 = EARLY (California Mariout) 2 = MIDSEASON (Betzes) 3 = LATE (Frontier)

[1] No. of days *Earlier* than ..... [8]
[ ] No. of days *Later* than ..... [ ]
1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON 5 = PIROLINE 6 = PRIMUS 7 = UNITAN 8 = STANDER

3, PLANT HEIGHT (From soil level to top of head):

[3] 1 = SEMIDWARF 2 = SHORT (California Mariout) 3 = MEDIUM TALL (Betzes) 4 = TALL (Conquest)

[ ][ ] Cm. *Shorter* than ..... [ ]
[0][9] Cm. *Taller* than ..... [8]
1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON 5 = PIROLINE 6 = PRIMUS 7 = UNITAN 8 = STANDER

4. STEM:

[2] Exertion *(Flag to spike at maturity)*: 1 = 0 - 3 cm. 2 = 3 - 10 cm. 3 = 10 - 15 cm.
[1] Anthocyanin: 1 = ABSENT 2 = PRESENT

[0][5] NO. OF NODES (Originating from node above ground)

[4] Collar Shape: 1 = CLOSED 2 = V-SHAPED 3 = OPEN 4 = MODIFIED CLOSED OR OPEN
[1] Shape of Neck: 1 = STRAIGHT 2 = SNAKY 3 = OTHER (Specify)

5. LEAF:

[1] Basal leaf sheath *(seedling)*: 1 = GLABROUS 2 = PUBESCENT
[2] Position of flag leaf *(at boot stage)*: 1 = DROOPING 2 = UPRIGHT

[1] Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY 3 = WAXY
[1][9] MM. WIDTH (First leaf below flag leaf)

[2][4] CM. LENGTH (First leaf below flag leaf)
[1] Anthocyanin in leaf sheath: 1 = ABSENT 2 = PRESENT

6. HEAD:

[2] Type: 1 = TWO-ROWED 2 = SIX-ROWED
[1] Density: 1 = LAX 2 = ERECT (Not dense) 3 = ERECT (Dense)

[2] Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER (Specify)
[2] Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY 3 = WAXY

[2] Lateral Kernels Overlap: 1 = NONE 2 = AT TIP 3 = 1/4 - 1/2 OF HEAD
[3] Rachis *(Hair on edge)*: 1 = LACKING 2 = FEW 3 = COVERED

7. GLUME:

[2] Length: 1 = 1/3 OF LEMMA 2 = 1/2 OF LEMMA 3 = MORE THAN 1/2 OF LEMMA
[3] Hairs: 1 = NONE 2 = SHORT 3 = LONG

[3] Hair covering: 1 = NONE 2 = RESTRICTED TO MIDDLE 3 = CONFINED TO BAND 4 = COMPLETELY COVERED

[3] Awns: 1 = LESS THAN EQUAL TO LENGTH OF GLUMES 2 = EQUAL TO LENGTH OF GLUMES 3 = MORE THAN EQUAL TO LENGTH OF GLUMES

[3] Awn Surface: 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH

9600082

8. LEMMA:

[5] Awn: 1 = AWNLESS 2 = AWNLETS ON CENTRAL ROWS, AWNLESS ON LATERAL ROWS 3 = SHORT ON CENTRAL ROWS, AWNLETS ON LATERAL ROWS 4 = SHORT (less than equal to length of spike) 5 = LONG (longer than spike) 6 = HOODED

[3] Awn Surface: 1 = AWNLESS 2 = SMOOTH 3 = SEMISMOOTH 4 = ROUGH

[3] Teeth: 1 = ABSENT 2 = FEW 3 = NUMEROUS

[1] Hair: 1 = ABSENT 2 = PRESENT

[1] Shape of base: 1 = DEPRESSION 2 = SLIGHT CREASE 3 = TRANSVERSE CREASE

[2] Rachilla Hairs: 1 = SHORT 2 = LONG

9. STIGMA:

[2] Hairs: 1 = FEW 2 = MANY

10. SEED:

[2] Type: 1 = NAKED 2 = COVERED

[1] Hairs on Ventral Furrow: 1 = ABSENT 2 = PRESENT

[4] Length: 1 = SHORT (8.0 mm.) 2 = SHORT TO MIDLONG (7.5 - 9.0 mm.) 3 = MIDLONG (8.5 - 9.5 mm.) 4 = MIDLONG TO LONG (9.0 - 10.5 mm.) 5 = LONG (10.0 mm.)

[4] Wrinkling of hull: 1 = NAKED 2 = SLIGHTLY WRINKLED 3 = SEMIWRINKLED 4 = WRINKLED

[1] Aleurone Color: 1 = COLORLESS (White or Yellow) 2 = BLUE

[0][0] PERCENT ABORTIVE

[3][9] GMS. PER 1000 SEEDS

11. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[0] SEPTORIA	[2] NET BLOTCH	[0] SPOT BLOTCH	[0] POWDERY MILDEW
[0] LOOSE SMUT	[0] BACTERIAL BLIGHT	[0] COVERED SMUT	[0] FALSE LOOSE SMUT
[2] STEM RUST	[0] LEAF RUST	[0] SCAB	[1] SCALD
[0] AY	[0] BSMV	[0] BYDV	[0] OTHER (Specify)

12. INSECT: (0 = Not tested, 1 = Susceptible, 2 = Resistant)

[0] GREEN BUG	[0] ENGLISH GRAIN APHID	[0] CHINCH BUG	[0] ARMYWORM
[0] GRASS HOPPERS	[0] CEREAL LEAF BETTLE	[0] OTHER (Specify)	

HESSIAN FLY RACES: [0] GP [0] A [0] B [0] C [0] D [0] E [0] F [0] G

13. CHEMICAL (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[0] DDT [ ] OTHER (Specify)

14. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	ROBUST	Seed size	BUMPER
Leaf size	ROBUST	Coleoptile elongation	ROBUST
Leaf color	ROBUST	Seedling pigmentation	ROBUST
Leaf carriage	ROBUST		

REFERENCES: The following publications may be used as a reference aid for the standardization of character descriptions and terms used in this form:

1. Wiebe, G. A., and D. A. Reid, 1961, Classification of Barley Varieties Grown in the United States and Canada in 1958, Technical Bulletin No. 1224, U.S. Dept. of Agriculture.
2. Reid, D. A., and G. A. Wiebe, 1968, Barley: Origin, Botany, Culture, Winter Hardiness, Genetics, Utilization, Pests, Agriculture Handbook No. 338, U.S. Dept. of Agriculture. pp. 61 - 84.
3. Malting Barley Improvement Association, Milwaukee, Wisconsin, 1971, Barley Variety Dictionary.

COLOR: Nickerson's or any recognized color fan may be used to determine color of the described variety.

EXHIBIT D

BOTANICAL DESCRIPTION OF 6B89-2027

='B2027' BAA
22 Feb
1996

6B89-2027 is a six-rowed, spring barley bred and developed by Busch Agricultural Resources, Incorporated Ft. Collins, Colorado. It has a mid-season maturity and excellent malting quality.

Juvenile growth habit is erect. Plant color at boot is green with an upright and slightly curled flag leaf. Semi-nodding head is strap shaped and lax with a straight neck and cup shaped collar. The first (basal) internode of the rachis may become elongated and twisted. The base of the first segment has a margin flange. Rachilla and glume hair are long and the rachis edge is covered with long hairs. Glume hair covering is confined to a band. Glume length is one-half of the kernel length and the glume awns are more than equal to the length of the glume and rough. Lemma awns are longer than the spike and semi-smooth. Lemma teeth are numerous and hairs are absent. Kernel overlap is from one-quarter of the spike to the tip. Seed is covered, mid-long to long, coarsely wrinkled and the aleurone is colorless. Wax is present on the kernel. Lemma base is a depression. Palea tips are long. Anthocyanin is absent from the kernel and awns. Rachilla is twenty-five percent of the kernel length with many hairs and thicker at the base. Kernel ventral crease is V- shaped and lacks crease and fence hair.

6B89-2027 possesses the T- gene for stem rust resistance. This six-rowed variety is adapted to Western Canada, North Dakota and Minnesota. Interim registration of 6B89-2027 is acknowledged in Canada and is known as BT-941.

EXHIBIT E.

STATEMENT OF THE BASIS OF APPLICANT'S OWNERSHIP

Busch Agricultural Resources, Incorporated is applicant for protection in this case being:

a). The incorporated business registered in Delaware for and within which regular employees have bred 6B89-2027 (BT941).
= 'B2027' AAA 22Feb1996

b). The proprietary owner and intending commercial seller of 6B89-2027(BT941).

9600082

AMENDMENT TO EXHIBIT E

PV Application No. 9600082, BARLEY, <6B89-2027>
= 'B2027' AAA 22 Feb 1996

6B89-2027 is a six-rowed spring barley for which Plant Variety Protection is hereby sought was developed by Dr. Mike Bjarko, an employee of Busch Agricultural Resources, Incorporated. By agreement between employees and Busch Agricultural Resources, Incorporated: all rights to any invention, discovery, or development made by the employee while employed by Busch Agricultural Resources, Incorporated, were assigned to Busch Agricultural Resources, Incorporated, with no rights of any kind pertaining to 6B89-2027 being retained by the employee.

EXHIBIT H

AGRONOMIC AND QUALITY DATA

SEE ATTACHED PAGE

9600082

6B89-2027 = 'B2027' AAA 22 Feb 1996

1995 MIDWESTERN SIX-ROWED A.M.B.A. TESTING CANDIDATE

AGRONOMIC SUMMARY

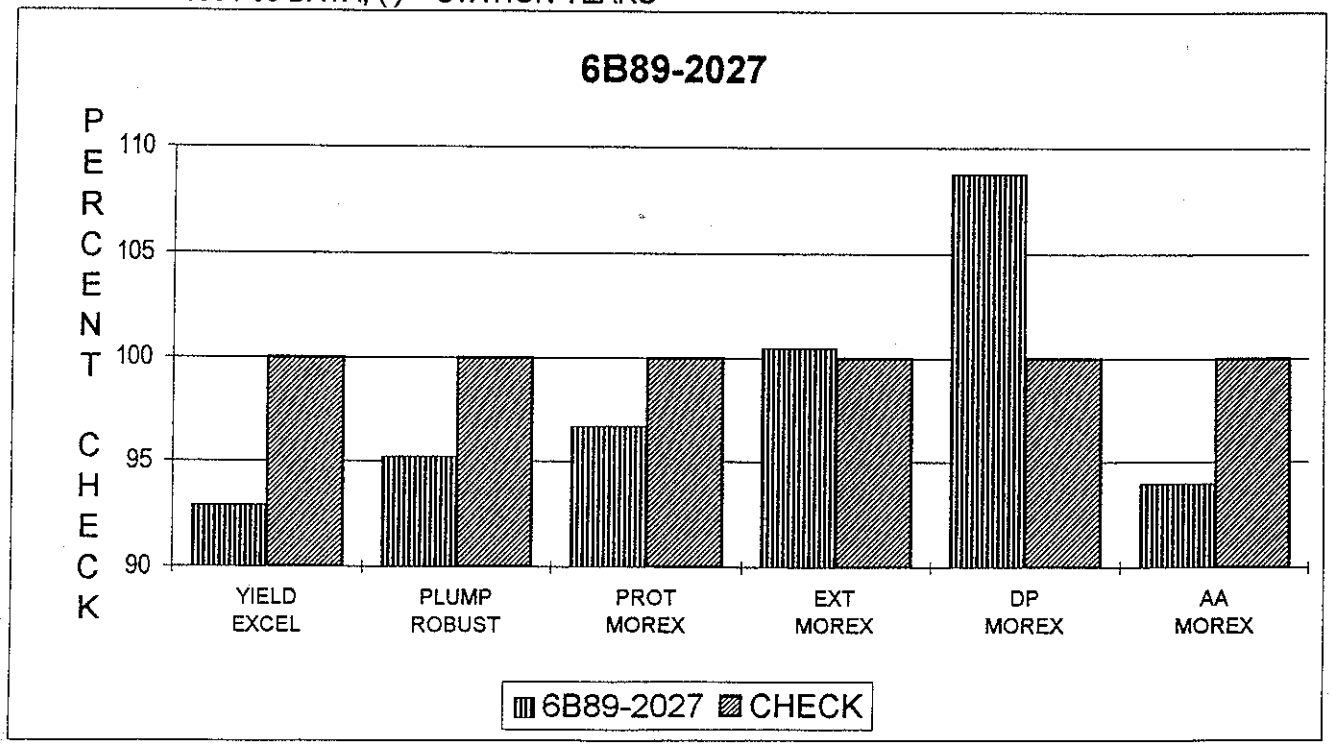
LINE OR VARIETY	YIELD (% EXCEL) (8) 94	(6) 95	(14) AVE	(9) HEAD 1/1	(5) HT CM	(6) LDG 1-9	(6) MAT 1-5	(9) TEST WT	(4) NET BLOTCH	(3) SPOT BLOTCH
6B89-2027	95	89	93	182	89	1.8	3.0	46.5	3.4	3.1
EXCEL	100 (77) *	100 (69)	100 (74)	183	83	1.5	3.8	47.7	5.5	3.4
ROBUST	93	91	92	183	87	1.3	3.5	48.0	4.1	2.8

1994-95 DATA, ( ) = STATION YEARS
* BUSHEL / ACRE

QUALITY SUMMARY

LINE OR VARIETY	(8) % PLUMP	(7) MALT PROT	EXTRACT (7) F. GRD	(7) C. GRD	(7) F-C DIF	(7) WORT VIS	(7) S/T	(7) SOL PROT	(7) DP	(7) AA	WORT (7) TUR
6B89-2027	75.6	13.7	77.6	75.8	1.85	1.45	44.1	6.1	191	65.4	5
MOREX	61.2	14.2	77.3	75.7	1.58	1.44	45.6	6.5	175	69.6	8
ROBUST	79.4	13.8	77.9	75.3	2.59	1.49	42.4	5.8	162	52.5	5

1994-95 DATA, ( ) = STATION YEARS



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